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February 16, 2005
Job No. 3057.01

Mr. Phillip Ostler
55 North Venice Blvd. Suite 503
Venice, California

Subject: **Work Plan / Post Remedial Investigation**
Former Fern Café - 606 Main Street Ferndale, California
NCRWQCB Case No. 1THU378, LOP N. 12378

Dear Mr. Ostler:

This report presents Trans Tech Consultants (TTC) Work Plan for a Post Remedial Investigation to be performed at 606 Main Street, in Ferndale, California. The subject site is approximately located as shown on the Site Location Map, Plate 1. This Work Plan was prepared in response to comments made in a February 1, 2005 letter from Ms. Kasey Ashley of the North Coast Regional Water Quality Control Board (NCRWQCB). The specific work scope outlined is also based on discussions with Mr. Mark Verhey of the Humboldt County Department of Health and Human Services Division of Environmental Health (HCDHHS-DEH).

Site Description

The site is located approximately 1/8 mile east of Francis Creek, and is bounded on the northeast by a private residence, on the northwest by Main Street, on the southeast by a lumber yard, and on the southwest by Shaw Avenue. The western half of the subject property is relatively flat, while the eastern half slopes gently to the east. The property contains one partially detached structure and two larger continuous buildings which house a variety of small businesses, including the former Fern Café.

Geology

Published geologic maps indicate that the site is underlain by estuarine deposits consisting of silty sands and clayey silts. Underlying the estuarine deposits is the Hookton formation, consisting of weakly consolidated marine sands with minor pebbly beds and clay strata. During the tank removal, silt and silty clay was found beneath approximately two feet of fill material to a depth of approximately 12 feet below ground surface (BGS). Based on regional topography, and the results of site investigations, the local groundwater flow direction is to the northeast. Groundwater was encountered at approximately 12 feet BGS during the tank removal activities and has historically ranged from 4 to 8 feet BGS in the monitoring wells.

Background

In September 1991, two 300-gallon and one 600-gallon underground storage tanks (USTs) were removed from two excavations at the Fern Cafe. All three tanks were reportedly rusted through. Soil and groundwater samples were collected for analysis under the direction of Mr. Kevin Metcalf of HCDPH-EHD. The analytical results of the soil samples collected from the excavations were presented in Selvage, Herber and Nelson's (SHN) *Phase I Preliminary Investigation and Evaluation Report*, dated October 1991. SHN reported that the southeast sidewall of the common excavation for the two 300 gallon UST's appeared clean however, the remaining sidewalls appeared to be impacted. SHN also reported that the sidewalls for the 600 gallon UST excavation appeared clean on the southwesterly and northwesterly sidewalls and appeared obviously impacted on the southwesterly and northeasterly sidewalls.

In October 1994, TTC advanced seven soil borings (SB-3 through SB-6, SB-8, SB-10, and SB-11) to depths of approximately 8 feet BGS. We were unable to drill borings SB-1, SB-2, SB-7, and SB-9 below depths of 1 to 2.5 feet BGS and no soil samples were collected from these borings. Two soil samples were collected from each boring for chemical analysis for total petroleum hydrocarbons (TPH) as gasoline, benzene, toluene, ethylbenzene, and xylenes (BTEX), and total lead. Based on the results of the soil investigation, three monitoring wells (MW-1 through MW-3) and one soil boring (B-4) were installed by TTC in May 1995. Groundwater samples were collected from the wells and analyzed for TPH as gasoline, BTEX, and total lead. The results of the 1994 and 1995 investigations were presented in TTC's *Summary Report, Supplemental Investigation,* dated August 2, 1995.

In order to further assess the groundwater impact southeast of the previously identified soil impact TTC proposed three hydropunch borings in a November 9, 1997 Work Plan. Following regulatory approval, on July 22, 1998, TTC observed the drilling of hydropunch soil borings (B-1 through B-3) to depths of approximately 15 feet BGS at the approximate locations shown on Plate 2. In addition, a soil boring was drilled adjacent to hydropunch soil boring B-1 and completed as groundwater monitoring well MW-4. A total of six soil samples and three groundwater samples were collected for laboratory chemical analysis. No soil samples were collected from MW-4. All soil and groundwater samples collected from this investigation were below laboratory test method detection limits for petroleum hydrocarbon constituents. The laboratory analytical results of the investigation were presented in TTC's *Summary Report, Additional Groundwater Investigation,* dated October 6, 1998.

On October 9, and 24, 2002, TTC performed a site investigation to further investigate and delineate the extent of the groundwater impact at the subject site, The site investigation involved the installation of two additional monitoring wells (MW-4 and MW-5) and three soil borings (SB-12 through SB-14) at the approximate locations shown on Plate 2. No soil samples were collected from

SB-14 due to an encountered utility line and the inability to re-locate the boring due to traffic control constraints. The laboratory analytical results of the soil and groundwater samples collected were presented in TTC's *Investigation Summary Report*, dated April 14, 2003.

On December 3, 2003, Beacom Construction of Fortuna, California and TTC were onsite to excavate impacted soil from beneath the former dispenser island. Impacted soils were removed from the bottom and sidewalls of the excavation until photo-ionization detector (PID) readings were less than 100 parts per million (ppm). Approximately 80 tons of impacted material was removed from the excavation and disposed of at Bens Trucking in Red Bluff, California. A descrip[tion of the field activities and the analytical results of the soil samples collected from the excavation were presented in TTC's *Summary Report*, dated January 19, 2004.

Groundwater samples have been collected, and flow directions measured from the monitoring wells on a regular basis since their installation in May 1995 (MW-1 through MW-3), July 1998 (MW-4), and October 2002 (MW-5 and MW-6). The concentrations of petroleum hydrocarbon constituents have fluctuated over the years and it has become evident that the extent of groundwater impact is fairly well defined. The historical groundwater flow direction and gradient data as well as historical groundwater analytical data was most recently presented in TTC's *4th Quarter 2004 Monitoring Report*, dated November 18, 2004.

Scope of Work

In order to assess the current levels of groundwater impact, we propose to advance four soil borings at the approximate locations shown on Plate 2. Two of the proposed soil borings will be placed adjacent to the former soil boring SB-12 and two soil borings will be placed offsite. The proposed soil borings will be advanced using hollow stem auger equipment and will be drilled to a total depth of approximately 10 to15 BGS. The analytical results of the groundwater samples collected from the borings will be evaluated and compared with the results obtained from samples collected during the October 2002 Investigation.

Our geologist will observe the drilling procedures and obtain soil samples at maximum depth intervals of 5 feet, at pronounced changes in soil type, from zones of obvious contamination, and from just above free groundwater. Soil samples will be collected for classification and field screening using a 2.0-inch inside diameter split-spoon sampler lined with clean stainless steel sample tubes, and will be classified in accordance with the Unified Soil Classification System.

Samples collected for laboratory chemical analysis will be recovered in pre-cleaned stainless steel tubes. Upon recovery, the laboratory samples will be collected using encore type sample containers, in accordance with the EPA 5035 sampling and preservation protocols. Sample containers will be

labeled, placed on ice, and transported under chain-of-custody protocol to a laboratory that is State-certified for the analyses requested within 48 hours of sample recovery.

Sampling equipment will be cleaned with a phosphate free detergent solution and double rinsed with clean water between sampling events. Drilling and sampling equipment will be steam cleaned between borings. At the completion of drilling activities, the soil borings will be abandoned by tremmie grouting with a cement/bentonite grout and capping with asphalt or concrete, where appropriate. The soil cuttings generated by the investigation will contained in 55-gallon DOT drums and stored onsite, pending disposal. Rinse water generated by the field investigation will be contained in a wooden frame, lined with 6 mil plastic sheets and pumped into 55-gallon drums, pending disposal.

Groundwater Sampling

Temporary slotted well casing will be installed into each of the soil borings and grab groundwater samples will be collected. The temporary wells will be checked for the presence of free phase hydrocarbons using an electronic interface probe. If no free phase hydrocarbons are encountered the temporary wells will be purged using a submersible pump and the suspended solids within the well will be allowed to settle for up to two hours prior to sample collection. Groundwater samples will then be obtained for laboratory chemical analyses using new disposable bailers for each temporary well. The water generated by development and sampling will be stored onsite in 55-gallon drums, pending disposal.

Laboratory Chemical Analysis

Select soil samples from borings and the groundwater samples from the temporary wells will be analyzed for TPH as gasoline, BTEX, MTBE and the additional five oxygenated fuel additives using EPA Test methods 8020/8015/8260M, respectively. The EPA 5035 sampling protocol will be used on select soil samples collected from the site. In addition, select soil samples will be analyzed for total lead. Analyses will be performed by a laboratory that is State-certified for the analyses requested. Chain-of-custody documentation will be maintained.

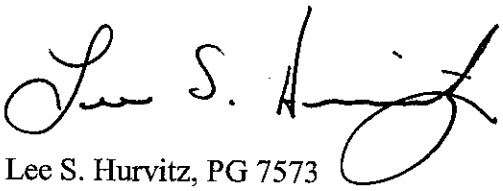
Closure

We will proceed with the field work after the HCDHHS-DEH has reviewed and approved this Work Plan and the necessary permits have been obtained. Upon completion of the field work and receipt of the laboratory analytical results, we will prepare a summary report of our findings. The report will include background data, soil disposal information, investigation and sampling procedures, laboratory analytical results, a site plan showing boring locations, boring logs, and a description of

conditions encountered. We will also provide our conclusions about the extent of soil/groundwater impact and recommendations for additional investigation, site remediation or closure, as appropriate.

We appreciate the opportunity to be of service to you and look forward to working with you on this project. If you have any questions, or require any additional information please feel free to contact us at (707) 575-8622 or www.transtechconsultants.com.

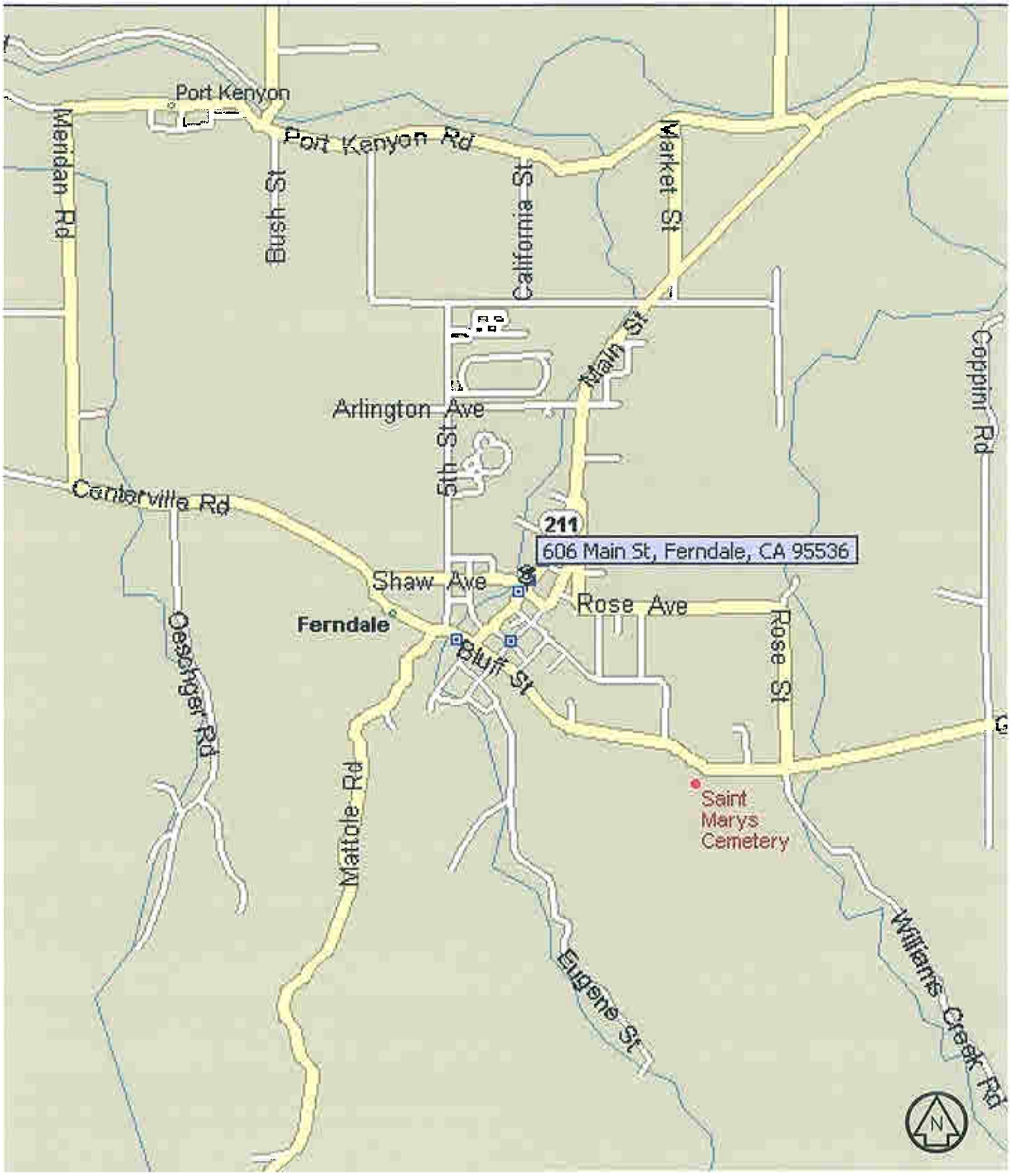
Sincerely,
TRANS TECH CONSULTANTS



Lee S. Hurvitz, PG 7573
Professional Geologist

Bill C. Wiggins, PE
Professional Engineer

Attachments:
Plate 1, Site Location Map
Plate 2, Site Plan
Distribution List



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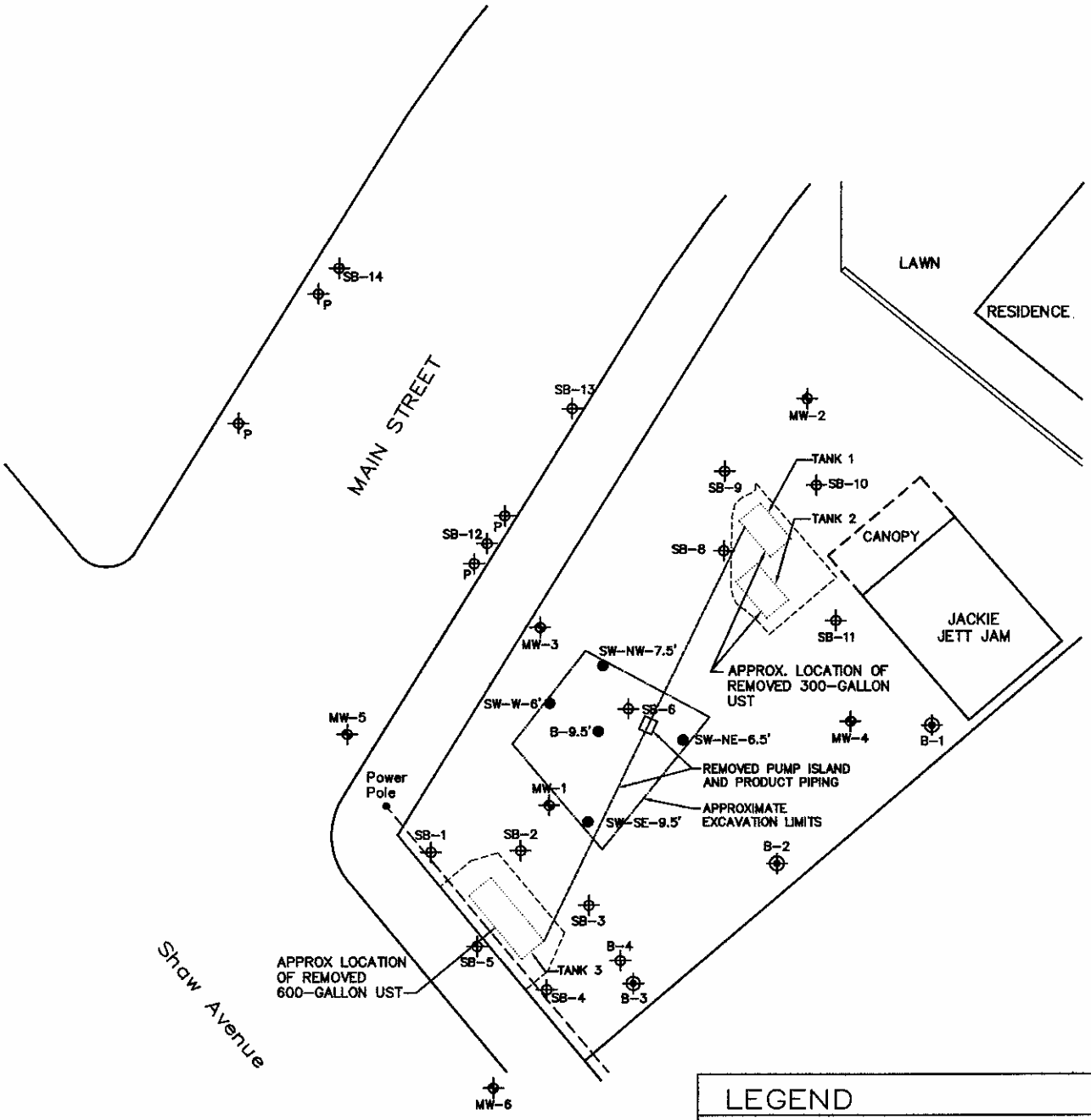
SITE LOCATION MAP

FERN CAFE
606 MAIN STREET
FERNDALE, CALIFORNIA

PLATE: 1

DRAWN BY:	DWG NAME:	APPR. BY:	JOB NUMBER:	W.O. NUMBER:	REVISIONS:	DATE:
PSC	3057.01.03 SLM	LSH	3057.01.03	A-212		8/25/03



LEGEND

- PROPOSED SOIL BORING LOCATION
- HYDROPUNCH SAMPLING LOCATION
- MONITORING WELL LOCATION
- SOIL SAMPLE LOCATION
- SOIL BORING LOCATION
- PREVIOUS EXCAVATION LIMITS
- NEW EXCAVATION LIMITS

N

0' 2' 4' 8' 16'

1/16" = 1'

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SITE PLAN

FERN CAFE
606 MAIN STREET
FERNDALE, CALIFORNIA

PLATE: 2

DRAWN BY:	DWG NAME:	APPR. BY:	JOB NUMBER:	W.O. NUMBER:	REVISIONS:	DATE:
PSC	3057.01 SP	LSH	3057.01	A-684		2/11/05

DISTRIBUTION LIST
Work Plan
Post Remedial Investigation
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Ferndale, California
February 16, 2005
Job No. 3057.01

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